CLAIMS

What is claimed is:

1. An apparatus, comprising:

a first framer coupled to a working set of synchronous optical network (SONET) lines, the first framer terminating a SONET section layer, a line layer, and a path layer;

a second framer coupled to a protection set SONET lines, the second framer terminating a SONET section layer, a line layer, and a path layer;

a selector controlling asynchronous transfer mode (ATM) cell reception from each set of SONET lines, the selector coupled to both the first framer and the second framer after the path layer;

a bridge controlling ATM cell transmission to each transmission line, the bridge coupled to both the first framer and the second framer before the path layer; and

an ATM device to receive and transmit ATM cells, the ATM device coupled to the selector and the bridge.

2. The apparatus of claim 1, wherein automatic transmission of a remote defect indication signal in the path layer in each framer is disabled.

3. The apparatus of claim 2, wherein a software program run by the ATM device controls transmission of the remote defect indication signal.

4. The apparatus of claim 1, further comprising a software program run by the ATM device to receive, process, and respond to path layer indications received from the working set of lines or the protection set of lines.

5. The apparatus of claim 1, wherein the same ATM cell is always sent on the protection set of SONET lines when sent on the working set of SONET lines.

6. The apparatus of claim 1, wherein the same ATM cell is sent on the protection set of SONET lines only when requested to by peer equipment.

7. The apparatus of claim 6, wherein the protection set of SONET lines protects more than one working set of SONET lines.

8. A method, comprising:

selecting with a selector to receive asynchronous transfer mode (ATM) cells on a working set of synchronous optical network (SONET) lines through a first framer, the first framer having a first section layer, a first line layer, and a first path layer, the selector coupled to the first framer after the path layer;

selecting with a selector to receive the ATM cells on a protection set of SONET lines through a second framer if the working set of SONET lines is faulty or if requested by a user, the second framer having a second section layer, a

second line layer, and a second path layer and the selector being coupled to the second framer after the second path layer; and

transmitting via a bridge ATM cells on the working set of SONET lines and on the protection set of SONET lines.

9. The method of claim 8, further comprising disabling automatic generation of a remote defect indication signal in the path layer in each framer.

10. The method of claim 9, further comprising controlling generation of the remote defect indication signal.

11. The method of claim 8, further comprising receiving, processing, and responding to path layer indications received from the working set of SONET lines or the protection set of SONET lines.

12. The method of claim 8, wherein an ATM cell is always sent on the protection set of SONET lines when sent on the working set of SONET lines.

13. The method of claim 8, wherein an ATM cell is sent on the protection set of SONET lines only if requested to by peer equipment.

14. The method of claim 13, wherein the protection set of SONET lines protects more than one working set of SONET lines.

15. A machine-readable storage medium tangibly embodying a sequence of instructions executable by the machine to perform a method comprising:

selecting with a selector to receive asynchronous transfer mode (ATM) cells on a working set of synchronous optical network (SONET) lines through a first framer, the first framer having a first section layer, a first line layer, and a first path layer, the selector coupled to the first framer after the path layer;

selecting with a selector to receive the ATM cells on a protection set of SONET lines through a second framer if the working set of SONET lines is faulty or if requested by a user, the second framer having a second section layer, a second line layer, and a second path layer and the selector being coupled to the second framer after the second path layer; and

transmitting via a bridge ATM cells on the working set of SONET lines and on the protection set of SONET lines.

16. The machine-readable storage medium of claim 15, further comprising disabling automatic generation of a remote defect indication signal in the path layer in each framer.

17. The machine-readable storage medium of claim 16, further comprising controlling the remote defect indication signal.

18. The machine-readable storage medium of claim 15, further comprising receiving, processing, and responding to path layer indications received from the working set of SONET lines or the protection set of SONET lines.

19. The machine-readable storage medium of claim 15, wherein an ATM cell is always sent on the protection set of SONET lines when sent on the working set of SONET lines.

20. The machine-readable storage medium of claim 15, wherein an ATM cell is sent on the protection set of SONET lines only if requested to by peer equipment.

21. The machine-readable storage medium of claim 20, wherein the protection set of SONET lines protects more than one working set of SONET lines.

22. An apparatus, comprising:

a means for selecting with a selector to receive asynchronous transfer mode (ATM) cells on a working set of synchronous optical network (SONET) lines through a first framer, the first framer having a first section layer, a first line layer, and a first path layer, the selector coupled to the first framer after the path layer;

a means for selecting with a selector to receive the ATM cells on a protection set of SONET lines through a second framer if the working set of SONET lines is faulty or if requested by a user, the second framer having a second section

layer, a second line layer, and a second path layer and the selector being coupled to the second framer after the second path layer; and

a means for transmitting via a bridge ATM cells on the working set of SONET lines and on the protection set of SONET lines.

23. The apparatus of claim 22, further comprising a means for disabling automatic generation of a remote defect indication signal in the path layer in each framer.

24. The apparatus of claim 23, further comprising a means for controlling the remote defect indication signal.

25. The apparatus of claim 22, further comprising a means for receiving, processing and responding to path layer indications received from the working set of SONET lines or the protection set of SONET lines.

26. The apparatus of claim 22, wherein an ATM cell is always sent on the protection set of SONET lines when sent on the working set of SONET lines.

27. The apparatus of claim 22, wherein an ATM cell is sent on the protection set of SONET lines only if requested to by peer equipment.

28. The apparatus of claim 27, wherein the protection set of SONET lines protects more than one working set of SONET lines.

29. A system, comprising:

a working set of synchronous optical network (SONET) lines, including a first working SONET line to receive asynchronous transfer mode (ATM) cells and a second working SONET line to transmit ATM cells;

a protection set of SONET lines, including a first protection SONET line to receive the ATM cells as part of an automatic protection system and a second protection SONET line to transmit ATM cells;

a first framer coupled to the working set of SONET lines, the first framer terminating a SONET section layer, a line layer, and a path layer;

a second framer coupled to a protection set SONET lines, the second framer terminating a SONET section layer, a line layer, and a path layer;

a selector controlling ATM cell reception from each set of SONET lines, the selector coupled to both the first framer and the second framer after the path layer;

a bridge controlling ATM cell transmission to each transmission line, the bridge coupled to both the first framer and the second framer before the path layer;

an ATM device to receive ATM cells, the ATM device coupled to the selector and the bridge; and

an ATM transmitter to send ATM cells, the ATM transmitter coupled to the working set of transmission lines and the protection set of transmission lines.

30. The system of claim 29, wherein automatic transmission of a remote defect indication signal in the path layer in each framer is disabled.

31. The system of claim 30, wherein a software program run by the ATM device controls transmission of the remote defect indication signal.

32. The system of claim 29, further comprising a software program run by the ATM device to receive, process and respond to path layer indications received from the working set of lines or the protection set of lines.

33. The system of claim 29, wherein the same ATM cell is always sent on the protection set of SONET lines when sent on the working set of SONET lines.

34. The system of claim 29, wherein the same ATM cell is sent on the protection set of SONET lines only when requested to by peer equipment.

35. The system of claim 34, wherein the protection set of SONET lines protects more than one working set of SONET lines.

36. A method, comprising:

selecting with a selector to receive asynchronous transfer mode (ATM) cells on a working set of synchronous optical network (SONET) lines through a first framer, the first framer having a first section layer, a first line layer, and a first path layer, the selector coupled to the first framer after the path layer;

selecting with a selector to receive the ATM cells on a protection set of SONET lines through a second framer if the working set of SONET lines is faulty or if requested by a user, the second framer having a second section layer, a second line layer, and a second path layer and the selector being coupled to the second framer after the second path layer;

transmitting via a bridge ATM cells on the working set of SONET lines and on the protection set of SONET lines;

disabling automatic generation of a remote defect indication signal in the path layer in each framer;

controlling generation of the remote defect indication signal; and

receiving, processing, and responding to path layer indications received from the working set of SONET lines or the protection set of SONET lines.